5 DEFINITION

The project Definition phase includes those activities and actions that occur between CD-0, Approve Mission Need, and CD-1, Approve System Requirements and Alternatives. In terms of specific project activities, Definition includes requirements development, alternative comparisons and selection, and conceptual design.

5.1 Project Definition

Project definition includes two key project activities—completing the AS and performing conceptual design. The essential nature of these two efforts cannot be overstated, since these activities establish the foundation upon which all remaining project life cycle actions and activities are based; including procurement; and facility, operating, and maintenance philosophies. Additionally, any changes in continuity and philosophy that occur after the Definition phase become more difficult and costly.

The AS, RD, RMP, and a draft PEP are developed. The RD and CDR define the results of the requirements analysis and conceptual design effort. The draft PEP describes project planning, organizing, issues, and interfaces, including safety, quality, and environmental requirements.

5.2 Acquisition Strategy

A comprehensive AS shall be developed for each project in accordance with this Manual, and be integrated with the risk analyses and submitted for review by OMBE prior to approval. For projects having a TPC of $400M or greater, the AS is approved by the Deputy Secretary. For projects having a TPC between $20M to $400M, approval is by the Under Secretaries. The PASs approve ASs for projects having a TPC between $5M and $20M. The AS is prepared by the IPT as early in the project life cycle as practicable. The AS should be consistent with the Site Plan. The completed, approved, and issued AS is a living document, maintained under change control (see Section 2.7), however, once the APB is approved and the PEP issued, it is not generally necessary to maintain the AS.

The AS outlines the process by which the efforts of all personnel responsible for significant portions of an acquisition are coordinated and integrated. The fundamental purpose of an AS is to ensure that the Department meets its needs in the most effective, economical, and timely manner. In developing the AS, the IPT may review previous plans for similar acquisitions and discuss them with the key personnel involved in these acquisitions to obtain maximum advantage of lessons learned. The AS is reviewed no less than annually, until the PEP is guiding the project, and only if substantial acquisition changes occur (revised and reissued).

The following guidelines should be considered, and as appropriate, reflected in the completed AS:

- Identify needs, develop specifications, and solicit offers in such a manner as to promote and provide full and open competition. When full and open competition is not required, solicit offers to assure maximum competition considering the goods and services being acquired. Address make-buy decisions for any research or technology development that is required involving sites, laboratories, or subcontractors.
- Encourage offerors to supply commercial items. To the extent suitable, if commercial items to meet the DOE needs are not available, provide nondevelopmental items in response to solicitations.
- Establish criteria and thresholds at which increasingly greater detail and formality in the process is required, as the acquisition becomes more complex and costly.
- Establish criteria and thresholds at which design-to-cost and life cycle cost techniques will be used.
- Develop and document risk comparisons and risk reduction strategies
- As applicable, tailor the AS to meet project requirements, depending upon cost, complexity, and schedule of the procurement. This may be most easily done by waiving requirements of detail and formality as appropriate.
- Assure sufficiently trained and capable personnel are available to analyze and evaluate proposals.
- Ensure that no purchase request would result in a contractor performing an inherently governmental function.
- Ensure that all contracts are adequately managed to verify effective management and control of contractor performance.
- Assure knowledge gained from prior acquisitions is used to better refine requirements and acquisition strategies. Especially the use of performance-based contracting and fixed-price contracting.
- Structure purchase requests to:
  - Facilitate competition by and among small business concerns.
  - Avoid unnecessary and unjustified bundling that precludes small business participation.

The PM and IPT should avoid issuing procurements on an urgent basis or with unrealistic delivery or performance schedules, since this generally restricts competition and ultimately, increases the price. Early in the planning process, the IPT may determine type, quantity, quality, and delivery requirements. If the AS proposes using other than full and open competition, this should be explained in the AS and to the SAE/AE.

Additional AS information is presented in the Practice on Acquisition Strategy Planning.

5.2.1 *Acquisition Strategy Format*

A detailed AS is developed based on the initial acquisition strategy that was documented as part of the MNS. Any additional follow-on project decisions and progress is now incorporated, and the following format is expected for the AS.

I. REQUIREMENT
   A. Summary project description
   B. Identification of authoritative source documents, e.g., Operational Requirements Document, DOE Strategic Plan, Legislation, approved MNS
   C. Status of requirements definition (e.g., not yet complete; complete and current; being revised)

II. PROGRAM STRUCTURE
   A. Summary diagram of the Program elements, activities, and organizations
   B. Acquisition Steps
      1. For each step:
         a. Identify the phase
         b. What is to be Accomplished
            1) Criteria
            2) Maturity of system design and system specification at end of each step
            3) Other projects or steps
         c. Key Events (e.g., design reviews; tests)
      2. Concurrency

III. RISK ASSESSMENT (tied to the RMP)
   A. Technical Analysis and Mitigative Strategies
   B. Schedule Analysis and Mitigative Strategies
   C. Cost Analysis and Mitigative Strategies
   D. Programmatic Analysis and Mitigative Strategies

IV. APPROACH TO MANAGING PROGRAM/PROJECT COST AND PERFORMANCE
   A. Establishing cost objectives
   B. Managing trade-offs between cost and performance
      1. Anticipated evolution of trade space
      2. How trade-offs will be encouraged
      3. DOE role in managing or approving trade-offs

V. PROGRAM MANAGEMENT
   A. General philosophy and approach
   B. Responsibilities
   C. Resources
      1. Funding

2. Staffing
    a. DOE
    b. Contractor support

D. Internal controls

E. Tailoring and streamlining plans
    1. Requests for relief or exemption from requirements
    2. Other tailoring or streamlining plans

VI. SUPPORT CONCEPTS AND STRATEGY FOR IMPLEMENTING INFORMATION TECHNOLOGY

VII. BUSINESS AND CONTRACTING STRATEGY

A. Industry involvement in the project to date

B. Government's role

C. Business base for various alternatives
    1. Schedule
    2. Cost
    3. Risk

D. Competition and/or make or buy analysis
    1. Market research conducted and/or planned
    2. Potential Sources
    3. Plans for full and open competition, or reasons and plans for other than full and open competition

E. Contracting strategy
    1. Major contract(s) planned
    2. Contract Structure
        a. Basic contract (what it buys; how major deliverable items are defined)
        b. Options, if any
    3. Contract types
        a. Basis for selection (in terms of FAR, Part 16)
        b. Linkage to project risk assessment
    4. Incentives
        a. Cost control
        b. Meeting or exceeding project cost objectives
        c. Performance
        d. Other
    5. Special contract terms and conditions

F. Component breakout program

G. Warranty and licensing considerations

H. Quality and Safety

VIII. OTHER IMPORTANT CONSIDERATIONS, such as logistics, other agency involved, Departmental support/integration/technology

Acquisition Strategy Approval Form

Document (indicate draft/final):____

____

Project Title/Number/Date:____

____

Document Approvals:

Project Manager:____Date___________

Field/Operations Office:______

Date___________

Program Manager:___Date___________

Program Office______Date___________

SAE/AE:_____Date___________

cc: OMBE

Figure 5-1. Acquisition Strategy Approval Form

5.3 Conceptual Design

If not already in place, a PM should be appointed prior to starting conceptual design and before funds are provided for the conceptual design effort. Typically, the conceptual design effort is contracted or added to a site's prime contractor's contract. In the latter case, a suitably trained and qualified contractor's project manager is appointed to manage the contractor's portion of the project. Although at a different level, a contractor's project manager has a role very similar to the PM. The IPT is further developed to encompass needed skills and other support staff. As appropriate, the IPT may also include the contractor's project manager. The contractor's project team is also organized at this time and begins functioning in a manner similar to the IPT.

The type of project will generally dictate the rigor imposed on the conceptual design effort, and may extend to testing of materials or processes, depending on the complexity of the proposed project. A formal VM analysis is required for all projects having a TPC greater than $5M. For maximum benefit, VM may be employed as early as possible in the project development/design process so valid recommendations can be implemented without delaying the progress of the project or causing significant rework of completed designs. Early phases of materiel asset acquisition yield the greatest cost reductions—usually as cost avoidances.

5.3.1 Requirements Analysis

The requirements analysis process develops the programmatic, system, functional and/or technical requirements over the various project phases for hardware, software, facilities, personnel, procedures, technical data, personnel training, verification matrices, spares, repair parts, and consumables needed to acquires test, deploy, operate, and maintain a system. Requirements analysis serves as one of the primary processes for program planning, future requirement analysis, trade studies, and other considerations.

These requirements define the systems engineering and design basis for the project. Requirements define and describe the extent to which a function(s) is to be executed, and are generally measured in terms of quantity, quality, coverage, timelines, safety, environmental, products. The requirements documentation provides the traceability from final test and operational performance back to mission need. It is a vital element in maintaining the connection between the mission need and the final capability.

The requirements identification process begins in the project Initiation phase with the development of the MNS. The MNS documents the requirement for a specific capability, defined in terms of performance. Upon approval the project proceeds to concept exploration, conducting R&D, prototyping, technology demonstrations and other activities necessary to analyze alternative and select the appropriate alternative(s). During these activities, analysis and documentation of the requirements is accomplished.

Each project shall document the requirements that form the basis for the design and engineering phase of the project and be delivered and approved at CD-1.

The earlier in a project's life cycle project requirements can be identified and defined, the more effectively and efficiently a project will progress through the various project phases, and meet project baselines, agreements and commitments. As a project progresses from mission need through concept exploration, development, and design, the process of identifying, analyzing, and refining requirements is continual and is always traceable to specifications and designs. Once approved, the RD becomes part of the baseline and is to be controlled through the change control process as with all baseline information.

Requirement identification and definition can originate from many sources, including:

- The MNS and requirements;
- Strategic plans and objectives;
- Legal agreements between the DOE and individual States and the EPA;
- National Codes and Standards;
- DOE Orders, Manuals and Standards;
- Background and knowledge of project personnel;
- Lessons learned from other projects;
- Research and development activities as well as pilot plant and full-scale testing;
- Industrial organizations and industry experts; and
- Other organizations such as the Defense Nuclear Facilities Safety Board (DNFSB), citizen's groups, and stakeholders.

As the requirements for a specific project are identified and defined, and, as a project progresses some of the requirements may not be essential to the core capability, statute, codes and standards, and Department directives. Although the other requirements are non-mandatory or non-essential, it is prudent to carefully evaluate each non-mandatory requirement to determine its usefulness and appropriateness prior to determining whether or not it should be included into the designed implemented capability. An acquisition project may choose to further develop additional requirement documents due to the complexity of project or the maturity of the requirements.

5.3.1.1 Requirements Definition

As a project progresses through its life cycle phase, the requirements evolve into increasing levels of detail and specificity.

- Performance or System Functions, are where the overall functions and capabilities are specified or stated. At this early stage, the function statements address the areas of programmatic mission, safety, environment and other necessary general functions. For large systems/facilities projects, when taken collectively, the functions should describe comprehensively how those systems contribute to the overall operation of the project as required by the MNS. This is generally the highest level and is set early in a project and tightly controlled due to their overarching coverage.
- System Functional Requirements result from the Performance/System Functions. These requirement statements include sufficient detail to establish the acceptance criteria or limits against which the actual performance capability of the as-built or remediated system can be evaluated. These requirements are broad enough that numerous "designs" may meet them, so that they may appropriately represent different concepts or alternatives. When adequately done, these may be employed to allow multiple competing alternative solutions when the Department wishes to maintain competition between the solutions, or to allow competing solutions to remaining viable.
- Subsystem and Component Requirements are specific requirements required of both an item and any interfacing items. They provide the individual specification required of the subsystem or component that are necessary for the item to appropriately support the larger system. They may or may not give the general details of required for fabrication.
- Specific Standards, which includes the Codes, Standards, Regulations and needed discipline (Electrical, mechanical, nuclear, fire, radcon, etc.) requirements to procure, fabricate, construct, inspect and test the components, subsystems, and systems. They are generally in individual specifications or drawing, however, some provide broad coverage, like a piping or building code which may be specified at a high level, but is to be carried through to the lowest level.

5.3.1.2 Types of Requirements Documents

DOE-STD-3024-98, which has been developed as a standard for bringing together the requirements of nonreactor Hazard Class 2 facilities and may be useful for others in a tailored fashion. The type of RD presented at CD-1 will depend on the complexity of the project, technology maturity, and other factors. Regardless, the RD forms the basis for project development, engineering, and implementation. These are not all done at the same time during the project life cycle.

Program RDs are typically employed when a program (or program which contains acquisition projects) needs to provide overall requirements integration across multiple programmatic activities and projects.

Functional RDs may be used to define functional capability when the project desires an unconstrained solution. This is normally employed there are multiple competing alternative solutions and the Department wishes to maintain competition between the solutions.

System RDs may be used for systems where the complexity is high and a significant systems engineering process is to be conducted to arrive at a definitive system solution and design.

Technical RDs are commonly used for projects where the solution is constrained; there are little or no technological issues, or there are stringent technical constraints and requirements.

5.3.2 The Conceptual Design Report

The CDR or the equivalent for non-system projects documents the outcome of the conceptual design effort and forms the basis for the order of range estimate and is the basic document for a CD-1 request. The CDR is often the first technical document presented to senior management to obtain support, sponsorship and inclusion in a budget request. **CDR shall clearly and concisely describe the alternative selected (scope, system/plant or facilities), how it meets the MNS, the functions/ requirements that define it, and demonstrate the capability for success.**

Elements of the CDR should include on a tailored basis:

- A project description containing an overview of the proposed project (design or characterization) and a synopsis of the development activities. In remediation projects, the report is a combination of applicable regulations and characterization.
- A schedule and cost baseline (including resource loading) for preliminary and final design that serves as a basis for a request for PED funding and performance evaluation
- An alternatives analysis including life cycle costs, operational considerations, site development considerations, relationships to other site activities, and the comparison of alternatives, their risks, and the determined preferred alternative. Life cycle costs are to include decontamination and demolition, transition (personnel and equipment moves), utilities, and maintenance including comparisons that incorporate a review of research

and development and/or technology development challenges that are presented by the selected alternative.

- A Preliminary Safeguards and Security Plan
- Preliminary design and analysis calculations including the facility(ies) required to respond to the MNS
- A draft PEP
- The summary test and acceptance criteria
- A project WBS and dictionary
- Facility condition assessments if the project is upgrading existing facilities. These assessments may confirm the suitability of facilities for the proposed action.
- A draft waste minimization/pollution identification and prevention plan, and a Waste Management Plan including control, storage, treatment, and disposal
- A draft D&D Plan, if required
- Assessments of and strategy for:
  - NEPA: the level of NEPA documentation required and the plan for completing these documents in support of the proposed project schedule.
  - Safety: the level of safety documentation required for the project, and the plan for completing these documents in support of the proposed project schedule.
  - The safeguards and security considerations for the project.
  - Site selection: the application of a coherent, defensible methodology to identify and evaluate site options.
  - Waste management: decontamination and decommissioning plans where appropriate and applicable; waste minimization efforts.
- Public and/or stakeholder input (where appropriate)
- Preliminary Interface Control Documents (ICD).
- Finalized system requirements and pplicable codes and standards for design, procurement, construction, or characterization (where appropriate).
- Site selection criteria and site surveys/site evaluations
- Anticipated/expected project products/deliverables (project end-state)
- Known and anticipated project constraints
- Conceptual design drawings/renderings/calculations (as appropriate)
- Initial planning for testing, turnover, RA or ORR
- Design alternatives

- A vulnerability assessment
- A draft plan for project Execution phase activities (PEP)
- Draft System Design Descriptions (SDD), if appropriate
- A preliminary plan demobilization and/or disposal of facilities being replaced.

5.3.3 Risk Management Plan

Program or project managers will identify, plan, and conduct comprehensive risk assessments for all projects. These risk assessments and plans are to be tailored. The risk assessment brings more "critical thinking" about risk to the project planning process—beginning with development of the draft AS through project completion. **A comprehensive RMP including the risk analyses, shall be developed and submitted for approval as part of the CD-1 decision point.** Effective risk management and planning will include the entire IPT to flesh-out uncertainties and develop a risk analysis and RMP that ensures risk reduction and mitigation strategies. A RMP will identify the controls and processes used to identify areas of cost, schedule, or technical risk that may occur during project planning and implementation (see Chapter 9).

5.3.4 Systems Engineering and Value Management Planning

All projects with a TPC expected to be greater than $5M shall perform formal System Engineering and Value Management activities. At a minimum, planning shall be accomplished prior to completing the conceptual design activity and initial VM/VE reviews performed as part of completing the CDR and value studies complete as part of CD-2 deliverables.

5.3.4.1 Systems Engineering

The primary goal of the systems engineering process is to transform mission operational requirements or remediation requirements into system architecture, performance parameters, and design details. Beginning with the definition of a need, the systems engineering process is viewed as a hierarchy that progresses through a baseline and ends with verification that the need is met, including interfaces, fit, and completeness. The application of systems engineering to a project is tailored to the project's needs.

Systems Engineering involves numerous iterative processes, such as requirements analysis, alternative studies, and functional analysis and allocation. A PM performs this planning and analysis to develop the sub-functions and their relationships that are necessary and sufficient to accomplish the desired top-level functions. These sub-functions form the key input for the project's WBS. **A WBS shall be developed as part of system requirements and alternative selection, be project scope driven and utilized as the common framework.**

At each level (system, subsystem, and component), sub-functions are identified based on the functions, requirements, and resulting design decisions from the previous level. As the level of detail increases, the sub-functions are allocated to systems, subsystems, and/or components.

For complex activities, a functional hierarchy diagram may be used to depict the breakdown of functions into sub-functions. Also, a functional flow block diagram may be generated to show the logical relationship of functions or sub-functions at the system or subsystem level (see the Practices). The functional flow diagram may be used to document which system, subsystem, or component performs the function and sub-functions.

A Systems Engineering Management Plan may be required. For small, non-complex projects, the system engineering planning may be appropriately covered in support of the CDR and/or PEP documents. Larger, more complex projects should normally have a formal Systems Engineering Management Plan issued and in use during the Definition phase.

5.3.4.2 DOE Value Management Program Philosophy

The value management methodology, (also known as value analysis, value engineering, value planning, etc.) should be considered for use in all materiel asset acquisition process phases. Value Management (VM) is defined as an organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life cycle cost consistent with required performance, quality, reliability and safety. VM is a technique directed toward analyzing the functions of an item or process to determine "best value," or the best relationship between worth and cost. In other words, "best value" is represented by and item or process that consistently performs the required basic function and has the lowest total life cycle cost. The VM program is an integral part of the overall project delivery process and is not a separate entity designed to "second-guess" the IPT or design authority.

The Department will utilize a two-tiered approach, as defined in the FAR to implement a viable cost-effective VM program. The two VM approaches, as described in FAR Part 48 are the "mandatory program" and the "incentive" (also known as voluntary) program.

VM Program Bases

OMB allows Federal Departments and Agencies to apply VM where the organization feels it is most appropriate. The minimum requirements for VM application, consistent with the two VM approaches described in FAR Part 48, are:

- A formal, mandatory VM program will be required for all facility construction activities having a TPC greater than $5M. For maximum benefit, VM should be employed as early as possible in the project development/design process so valid VM recommendations can be implemented without delaying the progress of the project or causing significant rework of completed designs. Employed in an organized effort, VM utilizes a systematic procedure for analyzing requirements and translating these into the most economical means of providing essential functions without impairing essential performance, reliability, quality, maintainability, and safety. This organized effort is commonly referred to as the Value Methodology Standard (SAVE International). The VM Standard is the systematic application of recognized techniques which identify the functions of the product or service, establish the worth of those functions, and provide the necessary functions to meet the required performance at the lowest overall life cycle cost. All mandatory VM studies, shall be accomplished using VM methodology, prior to CD-2.

- A VM Incentive Program (as described by the FAR) should be required in all contracts that are awarded on facility construction projects having a TPC greater than $5M, that are awarded after CD-2, where the following contract conditions exist:
  - DOE or its agents have dictated the specifications, design, process, etc., that the contractor must follow.
  - The contractor's cost reduction effort is not covered under award fee (or any other incentive).
  - The CO has confidence in the cost estimate for the work at issue. That is, confidence in the cost estimate is close to normal FAR pricing conditions.
  - The CO has great confidence in the contractor's accounting system, can separately track costs of VM efforts based upon the contractor's assertions and confirmation from the DOE cognizant CFO. That is, confidence in the contractor accounting system is comparable to normal FAR pricing conditions.
  - The proposal, if accepted, must require a change to the contract and result in overall savings to the DOE after implementation.

Additionally, it is the responsibility of the Department's Under Secretaries and their respective organizations to develop criteria and guidelines that conform to P. L. 104-106, "National Defense Authorization Act for Fiscal Year 1996," and OMB Circular A-131, for both in-house personnel and contractors that identify programs/projects with the most potential to yield savings from the application of VM techniques.

5.4 Critical Decision-1, Approve System Requirements and Alternative

The prerequisites for CD-1 include the completion of the Definition stage, which include RD, F&ORs, acquisition planning, and risk comparisons required to define the project scope. This planning stage addresses feasibility and technology identification. In addition, the project team focuses on better defining the technical scope and determining the best solution from business, schedule, cost, and other technical perspectives.

In the Definition stage, a high-level RD is agreed upon with the system owner, users, and project team. For all projects, including software, this becomes the initial building block in developing the APB. Successful completion of the conceptual design effort leads to preparation of a CD-1 submittal package and approval of CD-1, Approve System Requirements and Alternatives. CD-1 reaffirms the MNS for a proposed project and forms the basis for proceeding with preliminary design (project execution). Two important outputs of the conceptual design effort is the CDR and RMP. The CDR documents and supports plans and reports that provide the basis for the decision to move forward and complete the design by beginning the preliminary design activity. Changes to the preliminary rough order estimates and schedules for the project are documented and controlled through the change control process. **The WBS shall be used to generate an order of range cost and schedule estimate and included in the CD-1 package.**

5.4.1 Outputs and Deliverables for CD-1

Outputs and deliverables are required from the conceptual design effort. The typical outputs and deliverables from the project Definition phase include:

- An AS
- A CDR
- RMP
- Approved RD (e.g., F&OR) including any KPPs
- A preliminary order of range cost estimate that includes the Total Estimated Cost (TEC), Total Project Cost (TPC), and life cycle cost for the design baseline, as well as the proposed project summary cost estimate. Estimates may include estimating basis/methodology, assumptions, and a risk analysis. Cost estimates and schedules are to be linked to and derived from the project work breakdown structure.
- A project schedule for the preliminary design and a proposed project summary schedule including project milestones, Critical Decisions, and critical path. The schedule is to be linked to and derived from the project WBS.
- The proposed project funding profile included in the PDS and requested in the budget.
- The draft planning for project execution (draft PEP, Systems Engineering, and VM)
- A PDSA and or a Preliminary Hazards Analysis Report

5.5 Project Execution Plan

All projects provide both a draft PEP submittal as part of CD-1 (no other approvals required at this time), and a final PEP that is approved by the appropriate SAE/AE. If appropriate, these plans may be combined. **A PEP shall exist for each project; be an accurate reflection of how and by whom the project is to be accomplished; and prepared, submitted, and approved, by CD-2.** The PEP should be developed by the IPT, under the direction of the PM. A PEP summarizes critical information and documentation necessary to manage a project. The PEP uses the results from all project planning processes and combines them into a formally approved document used to manage and control project execution. Because of the importance of this particular document to the success of a project, considerable effort needs to be made to assure that the PEP is thorough and comprehensive. The PEP should: (a) accurately reflect the manner in which the project is to be managed and performed, (b) receive the necessary local reviews and approvals, and (c) be submitted to the SAE/AE in a timely manner, prior to the associated Critical Decision (see Section 2.3.1, CD-2).

A PEP is developed by the Program and/or the project manager using an integrated, systematic approach that ensures a project management system based on effective management practices that are sufficiently flexible to accommodate the size and complexity of the project. Organizational policies, constraints, and assumptions are also inputs into the development of a PEP. A preliminary PEP should be prepared, approved by the AE, and submitted in support of CD-1, Approve System Requirements and Alternatives. The completed PEP should be prepared and submitted in support of CD-2, Approve APB. PEP approval will normally be a precursor to CD approval.

Specific project activities and actions to be considered in developing and preparing a PEP include:

- Identifying project participants' responsibilities, authorities and accountabilities.
- Organizing and preparing a project WBS and WBS Dictionary.
- Interfacing the OBS with the WBS for assignment of responsibility and delegation of authority.
- Identifying and sequentially organizing both DOE and contractor project activities and durations.
- Performing critical path calculations and establishing project activity durations.
- Developing resource-loaded project activities.
- Doing risk assessment and mitigation planning.
- Developing a preliminary order of range project cost estimate.
- Establishing or identifying a progress (performance) measuring and reporting system.
- Developing a method of communicating results, reviews, and revisions of project documentation to project participants and stakeholders.

Once the project planning methodology is established, the combined skills and knowledge of project team members and external stakeholders are used to maximum advantage in developing the PEP. The PM builds the team, as the team builds the PEP, developing both mutual consensus and a sense of ownership.

A complete description of the expected contents of each PEP topic is provided in the Practice that addresses the PEP. Each PEP may discuss each topic in the sequence presented to assist in the DOE Headquarters review and approval process. Topics not addressed but referenced can be identified in the PEP. Deviations from the identified list can be discussed in the PEP. The minimum elements covered by a PEP should include:

- MNS/project objectives
- Summation of APB and KPPs
- Project description, including reference to operational, technical, and functional requirements
- An AS including funding, site development, permits, and licensing

- Project organizational structure including roles, responsibilities, authorities, and accountabilities; decision authority for DOE Headquarters and Field Elements, Program and project management; support functions such as safety analysis, health physics, ESH&Q; NEPA, etc.
- Resource requirements
- Any long-lead procurement and contracting action requiring integration
- Integrated Safety Management
- Systems/Value Management planning and plans for continuing the activity
- RMP (separate, but updated)
- QAP (generally separate, but updated)
- R&D, test and evaluation, alternative studies, trade studies
- Design Reviews
- WBS and WBS Dictionary
- Project cost, schedule, and scope order of range estimates (or preliminary range for a preliminary PEP), including separately identified risk allocations, and descriptions of baseline change control thresholds.
- Life cycle costs, cost control, and change management
- Project control systems and reporting systems
- Inspection, testing, test evaluation, turnover and startup
- Training.

The PEP may be tailored to meet the needs of a project, based on size, complexity, cost, and schedule. As appropriate, topics may be included in the PEP by reference. When these topics are referenced in the PEP this should be documented in the PEP. The rationale for tailoring can be presented to the SAE/AE.

When prepared, a PEP is be submitted for DOE Headquarters review and approval using the attached PEP Approval Form, Figure 5-2. Following approval, a PEP should be maintained under configuration control.

As a project progresses and more information becomes available, a PEP may, of necessity, require revising. Extensive revisions should be submitted to, reviewed by, and approved by the same entities that reviewed and approved the original document.

An expanded example of the contents of a PEP is provided in the Practices.

Project Execution Plan Approval Form

Document (indicate draft/final):____

____

Project Title/Number/Date:____

____

Document Approvals:

Project Manager:_____Date____________

Field/Operations Office:______

Date____________

Program Manager:___Date____________

Program Office______Date____________

SAE/AE:_____Date____________

cc: OMBE

Figure 5-2. Project Execution Plan Approval Form

5.6 Acquisition Sequence for CD-1

Once CD-0 is obtained, the AE directs the development of the system requirements and conceptual design, which results in a RD and CDR, AS, RMP, Preliminary Hazard Analysis, QAP, draft PEP, design funding estimate, and preliminary rough order estimates (cost, technical scope, schedule) for the remaining portion of the project. These documents are submitted for SAE/AE approval along with a PAS-validated PDS for design. The PASs establish a PED funding pool for projects having TPCs greater than $5M. These activities lead to a CD-1 (Approve System Requirements and Alternatives) determination. Where long-lead procurement is required, a phased CD-3 may be requested, subject to prior budget approval and funding availability.

5.7 Reporting

Monthly project progress reporting is to be implemented after mission need approval. While all reporting elements for each project may not be available at this point, reporting what is available should be routine by the end of the Definition phase. Reporting is accomplished in numerous ways, however, the DOE Project Assessment and Reporting System (PARS) is required. OMBE will organize, coordinate, and direct project status reporting (see Section 10.5). **Quarterly project progress reviews and reporting (monthly) shall be organized and implemented not later than CD-1 utilizing the DOE Project Assessment and Reporting System (PARS).**